



The following is an abstract of the EFTA Bulletin “EFTA Guide to EU Programmes (2007-13)” published November 2007. The full Bulletin contains descriptions of all the 2007-2013 programmes, together with good practice examples and a section on how to apply for funding. The full Bulletin is available on the EFTA Secretariat’s website: <http://www.efta.int/>

## Research – FP7



Knowledge lies at the very heart of the European Union’s Lisbon Strategy. The ‘knowledge triangle’ linking research, education and innovation is a core factor in European efforts to meet the Lisbon goals. The major challenge for European knowledge production up to now has been the lack of funding for research (particularly when compared with the US). Therefore, the key objective for EU research policy is that overall R&D expenditure in Europe reach 3% of GDP by 2010. Also, the increased budget for FP7 reflects this: over the next seven years, FP7 will have a budget of €50.5 billion (excluding the Euratom framework programme), a 63% increase from FP6 at current prices.

FP7 aims to strengthen and develop the European Research Area (ERA). The idea of a European research area grew out of the realisation that research in Europe suffers from three weaknesses: insufficient funding, lack of an environment to stimulate and exploit results, the fragmented nature of activities and the dispersal of resources. The objective of the European Research Area initiative combines 3 related and complementary concepts:

- create an “internal market” in research: an area of free movement of knowledge, researchers and technology, with the aim to increase cooperation to stimulate competition and achieve a better allocation of resources;
- restructure the European research fabric by improving the coordination of national research activities and policies which account for most of the research carried out and financed in Europe;
- develop a European research policy which not only addresses the funding of research activities but also takes into account all relevant aspects of other EU and national policies.

FP7 is designed to respond to Europe’s employment needs, competitiveness and quality of life.

The EEA EFTA States joined the research framework programmes with the EEA Agreement. Switzerland joined in 2004. Since June 2007, all four EFTA States have been participating in FP7. In addition, Switzerland participates in the Euratom research framework programme.

### Who can apply?

Individual researchers, research organisations/institutes, universities, enterprises, and national or international organisations can apply for funding under FP7. Participation in FP7 is in principle open to any country in the world, although funding is not of the same level as for EU Member States or associated countries that contribute directly to the programme budget.

### Previous programmes

Signature of the Treaty of Rome in 1957 ensured a close EU relationship in scientific research.



The Norwegian Minister for Research and Education, Øystein Djupedal, with the EU Research Commissioner, Janez Potočnik, at the EISCAT Radar at Svalbard.

(Photo: Tore Grønningseter)



The first research programme for Europe was designed to increase productivity in coal mines in the iron and steel industries. Biomedical advancement in the 1960s led to magnetic resonance imagery (MRI). The 1970s saw the founding of the European Space Agency (ESA) and the missions that confirmed Europe's major role in the conquest of space. The European Organization for Nuclear Research (CERN) has been an important contributor to European breakthroughs, being the cradle for the World Wide Web.

The EU research programme massively increased in scope and budget at the start of the FP4 in 1995. Since then, it has made up around 4% of public spending on research in Europe. It also took up around 5% of the EU budget, making it the fourth largest activity, only surpassed by the common agricultural policy, structural funds and foreign aid. The FP5 was launched in 1999 with a substantial budget increase that allowed for nearly 15 000 project contracts to be signed during its 4 years of existence that involved over 75 000 participants from 21 countries. The FP6 (2003-2006) designed new instruments, in particular integrated projects and centres of excellence, and continued its support for the mobility of researchers and better use of European research infrastructure.



GSM, the mobile telephony standard, was created through Norwegian and EU research projects.

## FP7 2007-2013

The two main strategic objectives of FP7 are to strengthen the scientific and technological base of European industry and to encourage its international competitiveness. These broad objectives have been grouped into four main categories: cooperation, ideas, people and capacities. For each type of objective, there is a specific programme that corresponds to a main area of EU research policy. All these programmes work together to promote and encourage the creation of European poles of scientific excellence.

Twenty-five per cent of FP7 activities are new. Among these are the new and autonomous European Research Council and the two thematic topics: security research and space. An enhanced national support structure has been put in place for FP7.

The 4 main specific programmes are described below.



The core of FP7 and its largest component by far, the Cooperation programme, fosters collaborative research across Europe according to several key thematic areas. In this part of FP7, support is provided in a number of areas corresponding to major fields of knowledge and technology, where highest quality research must be supported and strengthened to address European social, economic, environmental and industrial challenges. The bulk of this effort will be directed towards improving industrial competitiveness. The overarching aim is to contribute to sustainable development. The 10 themes determined for EU action are:

- health
- food, agriculture and fisheries, and biotechnology
- information and communication technologies
- nano-sciences, nano-technologies, materials and new production technologies
- energy
- environment (including climate change)
- transport (including aeronautics)
- socio-economic sciences and the humanities
- space
- security

These themes are broadly defined to adapt to changing needs and opportunities that may arise during the lifetime of FP7. Under each theme, future and emerging technologies and unforeseen policy needs (new epidemics, emerging concerns in food safety or natural disaster response) will be addressed. Dissemination will be considered an integral task under all thematic areas, including through the funding of network initiatives, seminars and events, assistance by external experts and information and electronic services in particular CORDIS (the main EU research portal).

Support for transnational cooperation will be implemented through the following actions:

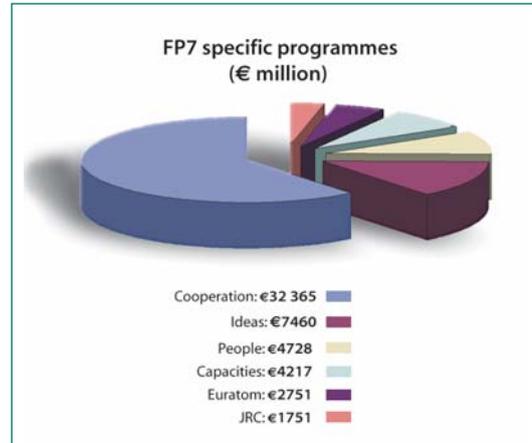
**Collaborative research** aims to establish excellent research projects and networks that can attract researchers and investments from Europe and the entire world. This will be achieved by supporting collaborative research through a range of funding schemes, collaborative projects, networks of excellence, and coordination/support actions.

In a very limited number of cases, the scope of research objectives and the scale of the resources involved may justify setting up long term public private partnerships in the form of **joint technology initiatives (JTIs)**. These initiatives will combine private sector investment and national and European public funding, including grant funding from FP7. Each JTI will be decided upon individually, either on the basis of Article 171 of the EU Treaty (this may include the creation of a joint undertaking) or on the basis of specific programme decisions in accordance with Article 166(3).

Four such JTIs have already been proposed by the European Commission:

- Innovative Medicine Initiative (IMI)
- Embedded Computing Systems (ARTEMIS)
- Nano-electronics (ENIAC)
- Clean Sky for sustainable air transport.

Coordination of **non-Community research programmes** will make use of two main tools: the European Research Area scheme, ERA-NET, and the EU's participation in jointly implemented national research programmes (under Article 169 of



the Treaty). The action may cover subjects not directly linked to the 10 themes in so far as they have sufficient European added value. The action will also be used to enhance complementarity and synergy between FP7 and activities carried out in the framework of inter-governmental structures such as COST (European cooperation in scientific and technical research). The ERA-NET scheme will develop and strengthen the coordination of national and regional research activities by providing a framework for actors implementing public research programmes to step up the coordination of their activities.

**International cooperation actions** are designed to enhance the participation of researchers and research institutions from third countries or specific cooperation actions in each thematic area dedicated to third countries.



Through the Ideas programme, for the first time an EU research programme finances pure, investigative research at the cutting edge of science and technology. Such 'basic research' is a key driver of wealth and social progress because it opens new opportunities for scientific and technological advancement. It is instrumental to the production of new knowledge leading to future applications and markets.

Despite many achievements and a high level of performance in a large number of fields, Europe is not making the most of its research potential and resources.

It urgently needs a strengthened capacity to generate knowledge and translate such information into economic and social value and growth.

The objective of Ideas is to reinforce excellence, dynamism and creativity in European research. In order to attract the best researchers from both European and third countries, as well as industrial research investment, the programme needs to provide a Europe-wide competitive funding structure, in addition to, and not replacing, national funding, for 'basic research' executed by individual teams. Communication and dissemination of research results is an important aspect of this programme.

As well as bringing such research closer to the conceptual source, this programme recognises the value of basic research to society's economic and social welfare.

Ideas is being implemented by the new **European Research Council (ERC)**, which consists of a scientific council and an implementing agency. Research may be carried out in any area of science or technology, including engineering, socio-economic sciences and the humanities. The ERC operates according to the principles of scientific excellence, autonomy, efficiency, transparency and accountability, and supports investigator-driven projects in 'frontier research', carried out by individual teams competing at European level, within and across all fields of research.

ERC grants will be awarded through open competition to projects headed by researchers who are working in Europe, irrespective of their national origin. The sole criterion for selection is excellence. The aim here is to recognise the best ideas, and retain and confer status and visibility on the best brains in Europe, while also attracting talent from abroad.



The People programme provides support for research mobility and career development. Highly trained researchers are needed in Europe in order to advance science and underpin innovation, and to attract and sustain public and private investment in research. With growing global competition, the development of an open European labour market for researchers and the diversification of skills and

career paths of researchers are crucial. Mobility, both transnational and intersectoral, is therefore a key component of the European Research Area. These actions are being implemented by a coherent set of Marie Curie actions, designed to help researchers build their skills and competences throughout their careers. In the FP7 People programme, activities will cover all stages of a researcher's professional life, from initial research training to lifelong learning and career development.

While continuing to build on the positive experiences of the Marie Curie programme, there will be an increased focus on three aspects:

**Better structuring:** while existing European post-doctoral fellowships have reached a degree of maturity, there is fragmentation among regional, national and international (non-Community) programmes, which are often limited in their European dimension. European co-funding for these programmes could bring about a better structure.

**Industrial participation:** FP7 will introduce a stronger focus on training and career development (especially in the private sector). There will be a stronger emphasis on developing the complementary skills needed to better understand research in enterprises and on an active role for industrial actors, especially SMEs.

A stronger **international dimension:** FP7 will reinforce cooperation with researchers from third countries and introduce new dimensions for collaboration with the EU's neighbouring countries. 'Scientific diasporas' of European researchers abroad and foreign researchers in Europe will also be supported.



The Capacities programme aims at enhancing research and innovation capacities throughout Europe and ensuring their optimal use. It has a budget of more than €4 million to be used in 7 broad areas:

- research infrastructures
- research for the benefit of SMEs
- regions of knowledge and support for regional research-driven clusters
- research potential of convergence regions
- science in society

- support to the coherent development of research policies
- international cooperation

This specific programme also aims to support the coherent development of policies, complement the Cooperation programme, contribute to EU policies and initiatives to improve the coherence and impact of Member State policies and find synergies with regional and cohesion policies, structural funds, education and training programmes and the CIP.

The importance of research infrastructures is already well established in areas such as energy and space. For example, observatories for environmental and space sciences or nano-electronics, are at the core of research. They are expensive, need a broad range of expertise to be developed, and should be used and exploited by a large community of scientific and customer industries on a European scale.

A risk-sharing finance facility (RSFF) has also been set up in FP7, with a budget from the Cooperation

### EFTA good practice

## Water matters – the Poseidon project

Antibiotics are an essential part of human and veterinary medicine because they contribute significantly to our quality of life. Knowledge of what happens to their active organic ingredients after use is limited. Upon excretion from humans, they are released through the waste water system into the environment – and eventually back into the drinking water supply. But the degradation of the active compounds during this process has never been quantified. We know that over the last decade, Europe has consumed, on average, 12 500 tonnes of antibiotics per year, and that their use is increasing. Recent findings confirm their presence in municipal waste water and agricultural waste.

This problem is not limited to antibiotics. Other medicines, such as birth control pills and painkillers, and many personal care products, contain persistent organic compounds. Grouped as pharmaceutical and personal care products (PPCPs) these compounds are used in the home and discharged directly into municipal waste water systems.

Measurements at sewage treatment plants (STPs) across Europe have identified 36 different PPCPs in effluent and more than 30, including antibiotics, in rivers and streams.

The Poseidon project developed methods to reduce the uncontrolled releases of PPCPs to the environment via wastewater. Further, the project intends to enhance efficient and unpolluted water supply and to specify the potential risks of PPCPs to the environment.

The Poseidon project includes the Swiss Federal Institute of Environmental Science and Technology, and was supported by the EU Research programme. Under FP6, Switzerland performed well. Proposals involving Swiss researchers had a 24% success rate – significantly higher than the EU average of 20%.

See <http://poseidon.bafg.de/>



and Capacities specific programme budget lines. It involves risk-sharing with the European Investment Bank (EIB) to allow a larger volume of EIB lending, financing of riskier projects by the EIB and the improvement of access to EIB loan finance.

In addition to these four specific programmes, the non-nuclear research activities of **joint research centres (JRCs)** are grouped under a specific programme with an individual budget allocation. JRCs provide scientific and technical support for EU policies. The first JRC was established in Ispra, Italy in 1958 (under the Atomic Energy Community). There are now 7 institutes within the JRC system, set up in five EU Member States. As a service of the European Commission, JRCs function as reference centres of science and technology for the Union, and are independent of special interests, whether private or national.

The JRCs under FP7 aim to develop international collaboration in areas of strategic importance, such as global warming, sustainable development, external security, metrology, food security and global resources.

## Contact points



**European Commission**

<http://ec.europa.eu/research/>  
<http://www.cordis.europa.eu/fp7/>



**Icelandic Research Council**

<http://www.rannis.is/>



**Office of Economic Affairs**

<http://www.avw.lv.li/>



**Norwegian Research Council**

<http://www.forskningradet.no/>



**Swiss National Science Foundation**

<http://www.snf.ch/>



To study the technical feasibility of using hydrogen as a fuel, three hydrogen-powered buses were put on the road in Iceland in 2004. FP7 supports hydrogen fuel research through the energy theme, under the Cooperation programme.